Ethics of Research with animals

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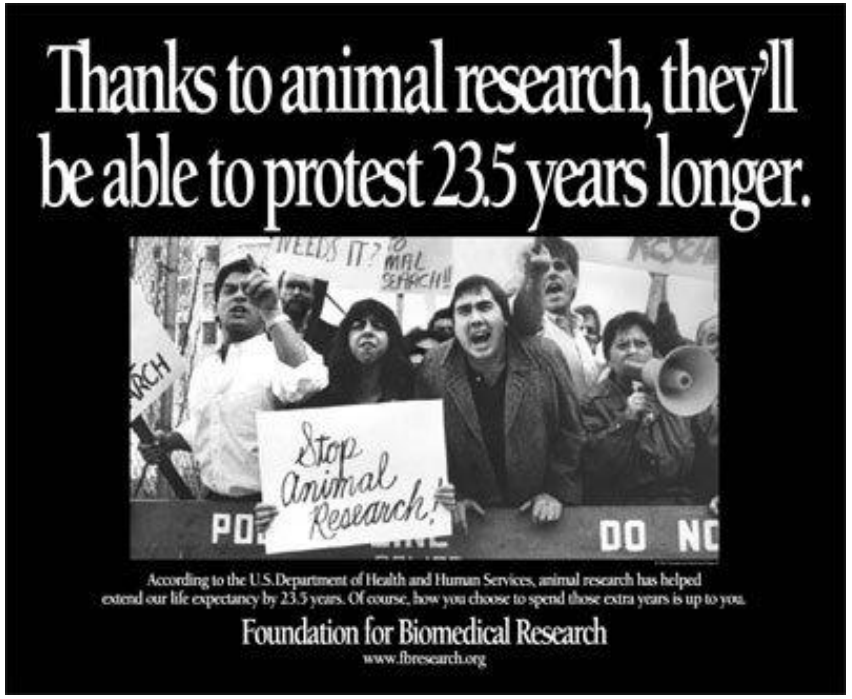
Conflict of values



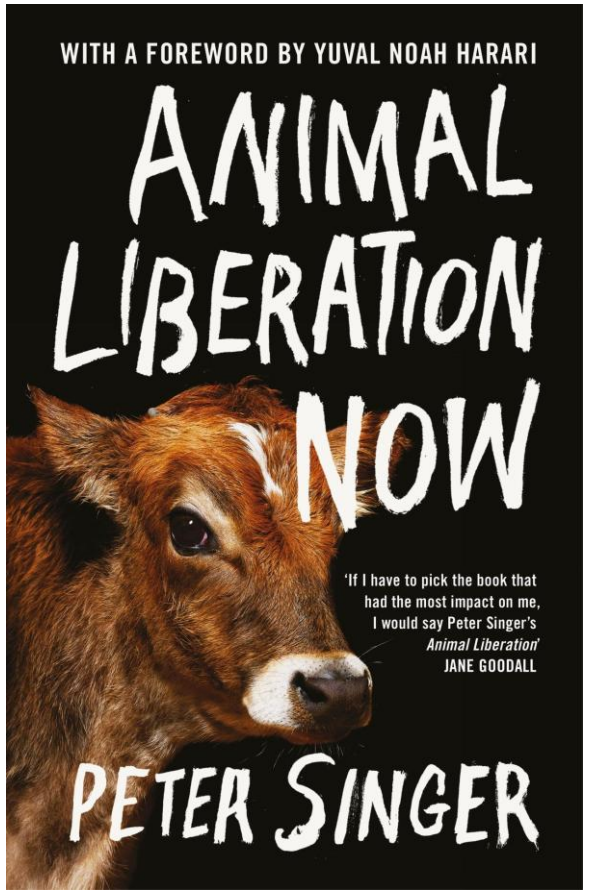
Paradoxes

« When mice do little more than nibble our food, we justify using some of the most abominable painful mechanical and chemical means to exterminate them.

However, when kept as laboratory animals in what would be considered 5-star hotels with room service and jacuzzis, we accord them rights. »
Andrew Moore: EMBO Reports 2001: 2(7)

Paradoxes

«So the researcher's central dilemma exists in an especially acute form in psychology: either the animal is not like us, in which case there is no reason for performing the experiment; or else the animal is like us, in which case we ought not to perform on the animal an experiment that would be considered outrageous if performed on one of us.»
Peter Singer: Animal Liberation, p. 52



Debate in Switzerland

SWI swissinfo.ch

Des perspectives suisses en 10 langues

Co

40'000 signatures contre l'expérimentation animale en Suisse

29 avril 2024 - 13:25

Debate in Switzerland

L BRÈVES RÉGIONALES

Fribourg. Près de 300 manifestants ont dénoncé l'expérimentation animale

A l'appel de la Ligue Suisse contre l'expérimentation animale et pour les droits des animaux (LSCV), une dizaine d'organisations et leurs sympathisants ont participé samedi à une journée demandant l'arrêt progressif de toute utilisation d'animaux à des fins de recherche ou de développement.

MARC-ROLAND ZOELLIG
27 avril 2024 à 17:18, mis à jour à 19:36

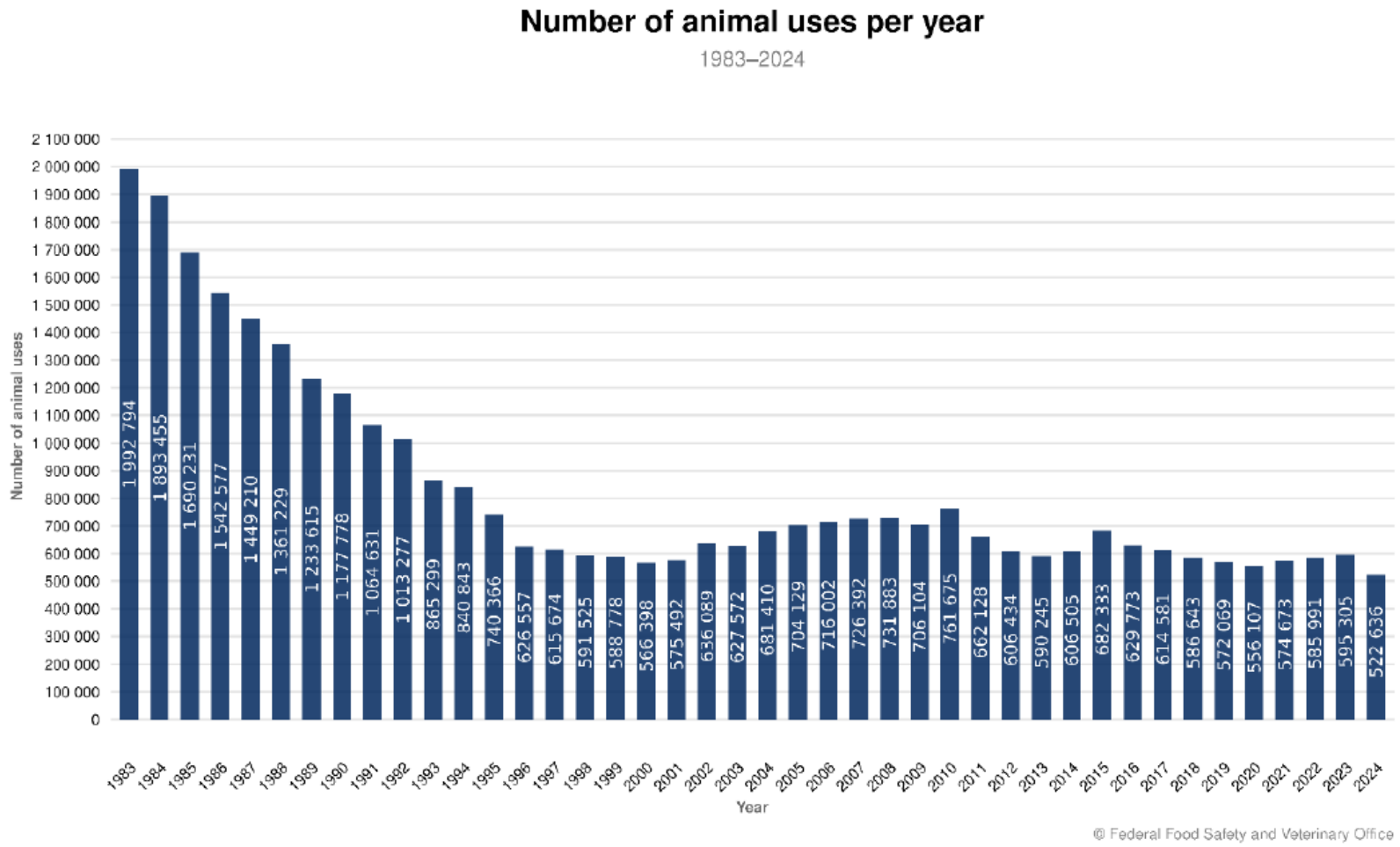


Fig. 1: The number of animals used fell very rapidly from 1983 to 2000. Since then, the numbers have stabilised within a certain range, with fewer animals used in the last 10 years than in the 10 years before.

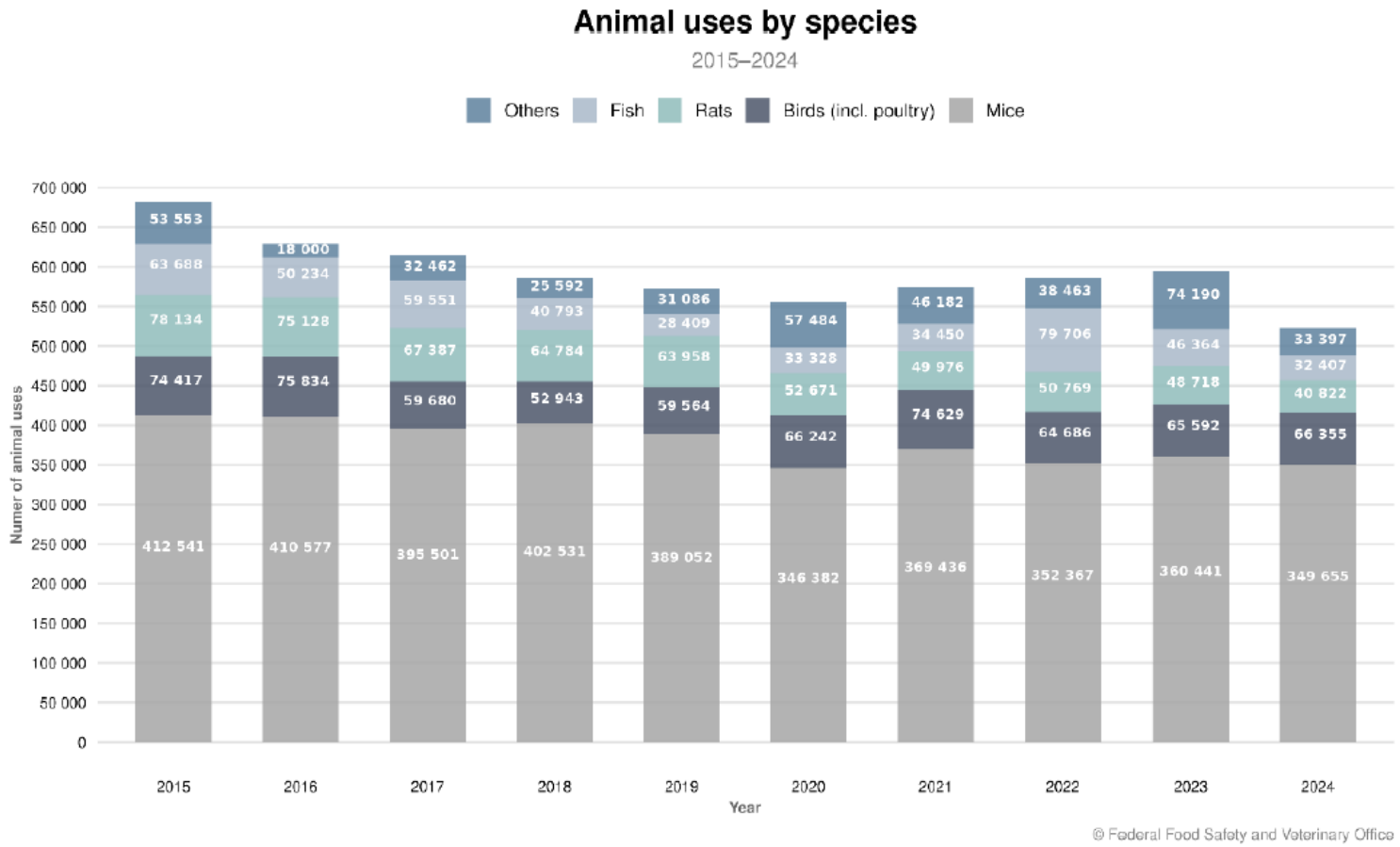
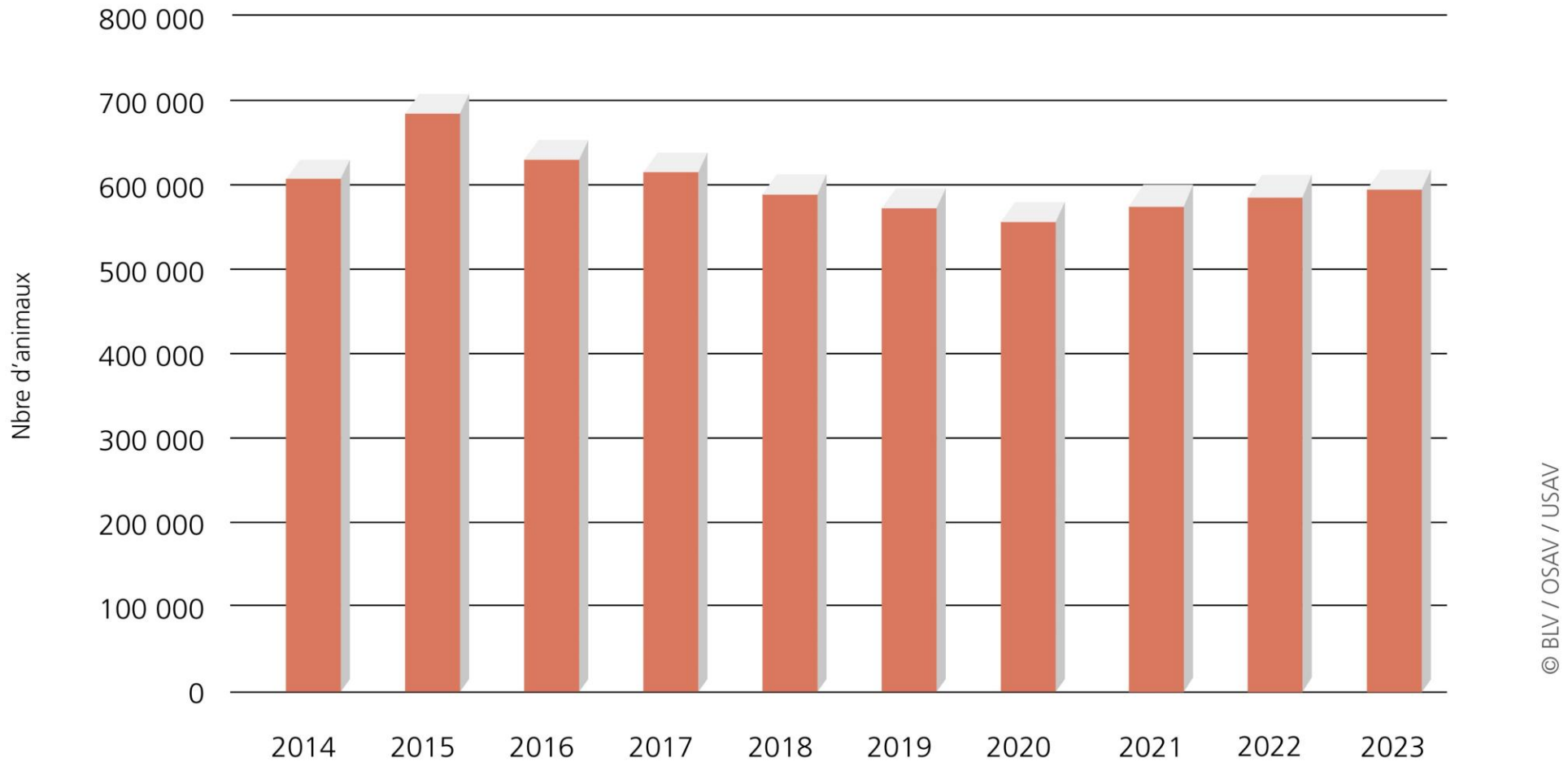


Fig. 8: Development of the number of animal uses by species 2015–2024

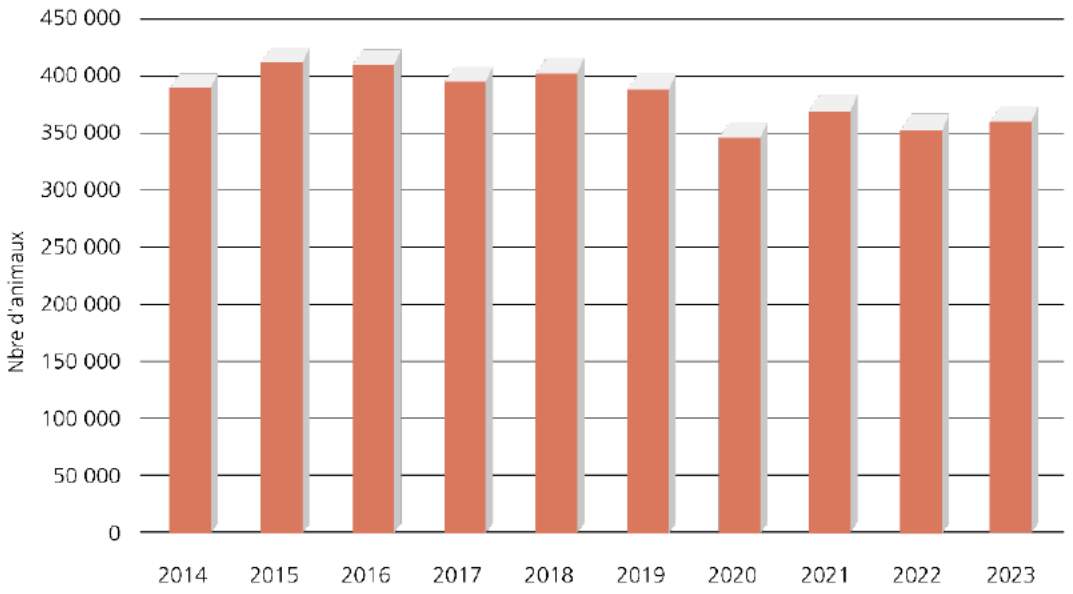
Expérimentation animale 2014-2023 :

Augmentation du nombre d'animaux utilisés dans des expériences en 2023



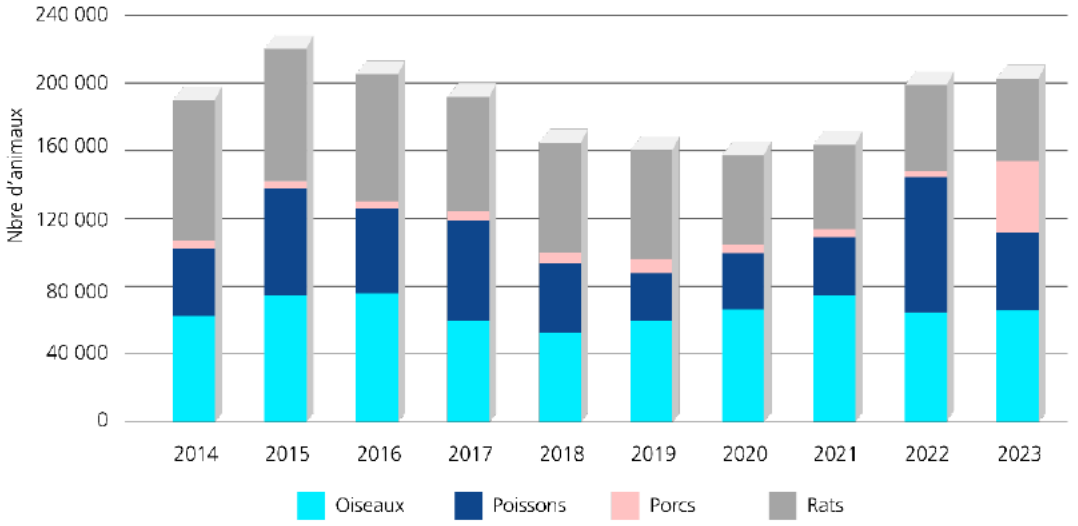
Expérimentation animale 2014-2023 :

Évolution du nombre de souris utilisées



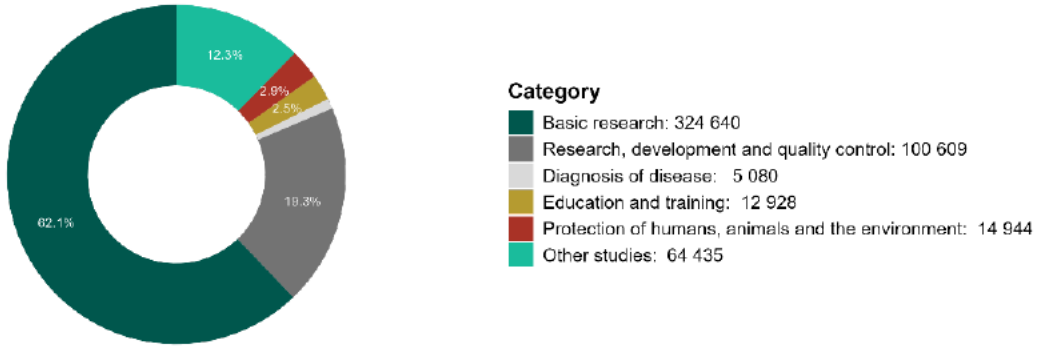
Expérimentation animale 2014-2023 :

Évolution du nombre d'oiseaux, de poissons, de porcs et de rats utilisés



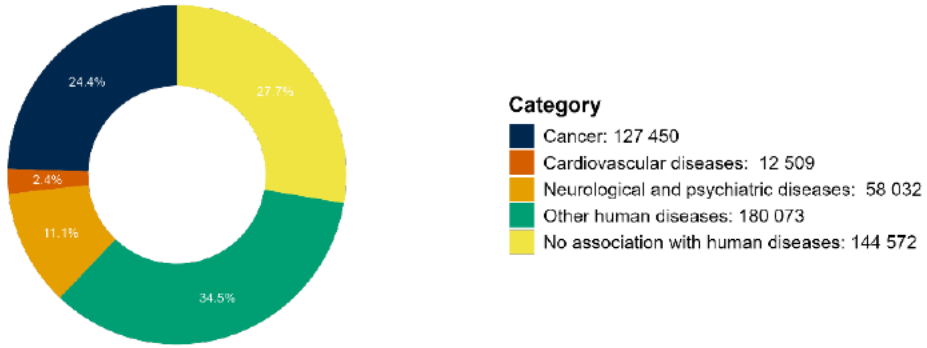
Distribution by experimental purpose

Animal uses in 2024



Distribution by human diseases

Animal uses in 2024



Ethical dimensions of research with animals

- Animal experimentation raises ethical questions:
  - Animals are used as means to other ends, i.e., they are instrumentalized.
  - Animal research often involves harm and suffering for the animals.
  - The animals generally don't benefit from the experimentation
  - The experiments often end fatally for the animals.

- How can we justify animal experimentation? How much do animals matter morally? What forms of animal research can be justified?

Moral status of animals

- What is the moral status of animals?
- Do they matter from a moral standpoint?
- How much?
- What are the implications on how we ought to treat them?

Commonly accepted practice

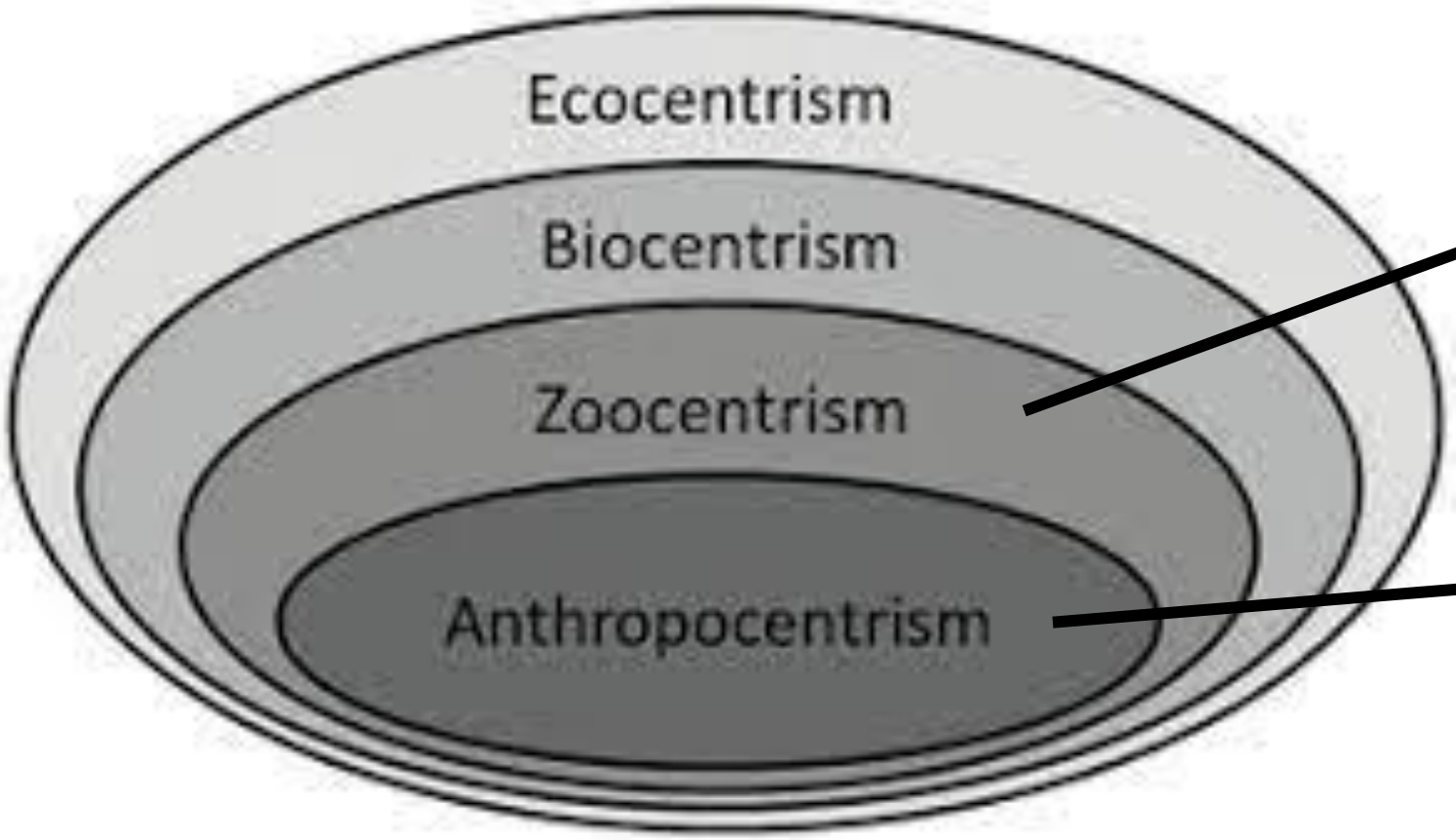
- We experiment on animals to avoid conducting it on humans (as much as possible).
- We keep animals in captivity for research purposes.
- We kill animals (to experiment on them, when there are too many, at the end of the study).
- Clearly, we consider animals to be less important than humans. Why? Is this justified?

Moral status of animals

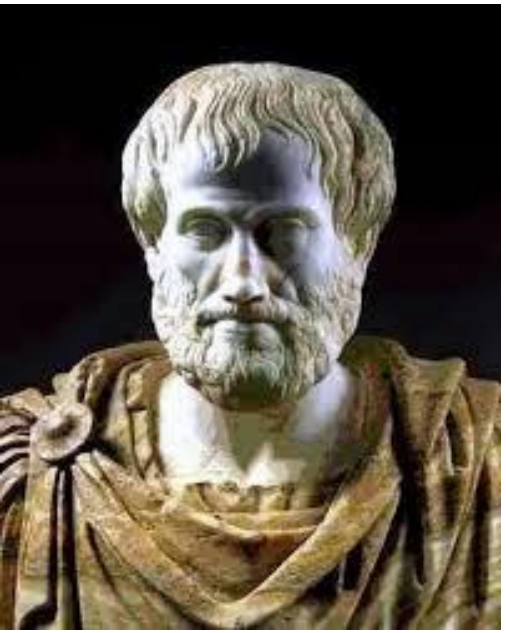
Three possible answers:

- Animals do not count morally
- Animals count indirectly
- Animals count morally
  - As much as humans
  - Less than humans

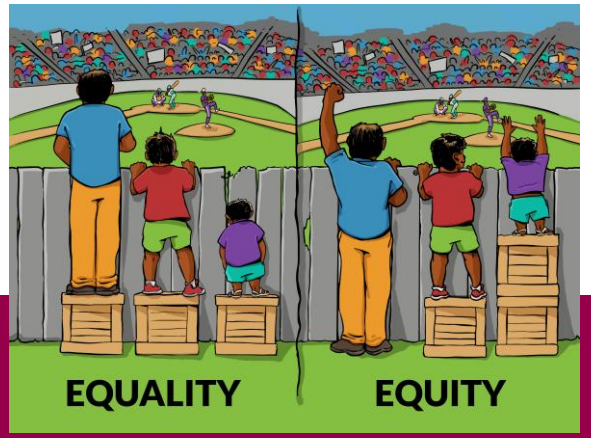
Hierarchy of moral relevance



Reminder: Principle of formal equality



- If two individuals are equal in a certain respect, they must be treated equally in that respect. (Aristotle, Nicomachean Ethics, V.3. 1131a10-b15; Politics, III.9.1280 a8-15, III. 12. 1282b18-23)
- E.g., if we want to treat individuals differently, we must be able to demonstrate that they are not equal (e.g., humans/animals).



Justification

- If (some) animals do not matter as much as humans, there must be a morally relevant difference between humans and animals

Criteria for having a moral status

- Possible criterias:
  - Sentience
  - Ability to feel pain?
  - Rationality?
  - Species?
  - Ability to act?
  - Ability to act morally?
- Problem 1: these criterias are not exclusive to humans
- Problem 2: not all humans satisfy these criterias

Coherence

- If there is no morally relevant difference between humans and (certain) animals, we should give them the same moral status as humans (and treat them accordingly).
- Species overlap argument

Incoherence

« When mice do little more than nibble our food, we justify using some of the most abominable painful mechanical and chemical means to exterminate them.

However, when kept as laboratory animals in what would be considered 5-star hotels with room service and jacuzzis, we accord them rights. »

Andrew Moore: EMBO Reports 2001: 2(7)

Criteria(s) for moral status

- The fact that a being is not capable of acting morally does not imply that it has no moral status.
- A distinction must be made between:
  - Moral agents: beings capable of acting morally, i.e., of being responsible for their actions, who have moral duties (not to kill, not to steal, etc.).
  - Moral patients: beings who can be wronged and harmed, who may have moral rights (not to be killed, to be respected, etc.)

No moral status

- Ex: Descartes
- Animals are machines
- They are a bunch of springs and pieces

Indirect moral value

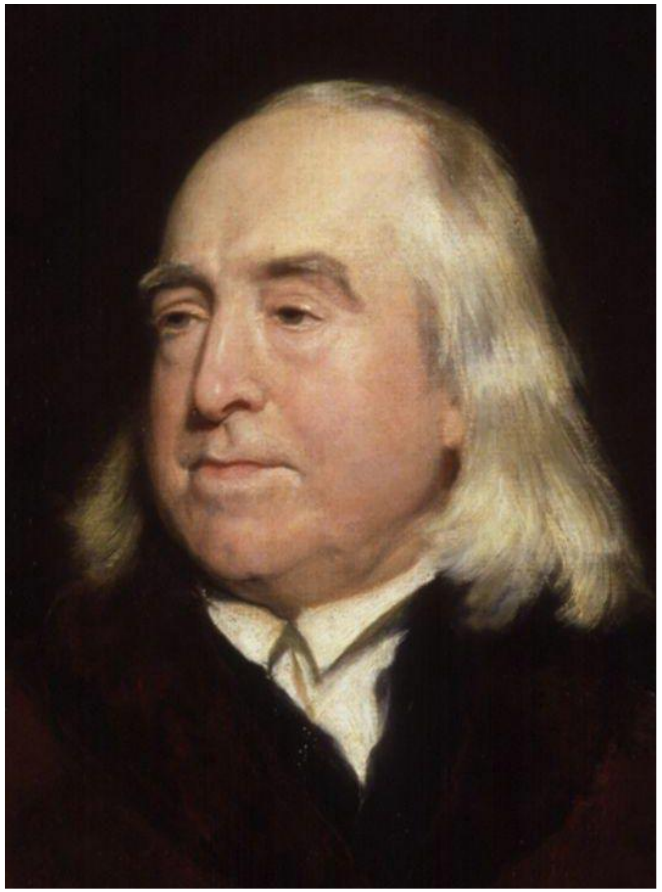
- Kant
  - Moral value lies in rationality.
  - Animals have no moral value:
  - “He [man] is a single person, that is to say, a being entirely different in rank and dignity from things such as animals without reason, which can be disposed of at will.”

Indirect moral value

- Kant
  - But animals must still be treated well:
    - “A man who is capable of cruelty to them [animals] will also be capable of cruelty to his fellow men. We can already judge a man's heart by the way he treats animals.”
    - ([1784–5] 1997: 212 [Ak 27: 459])

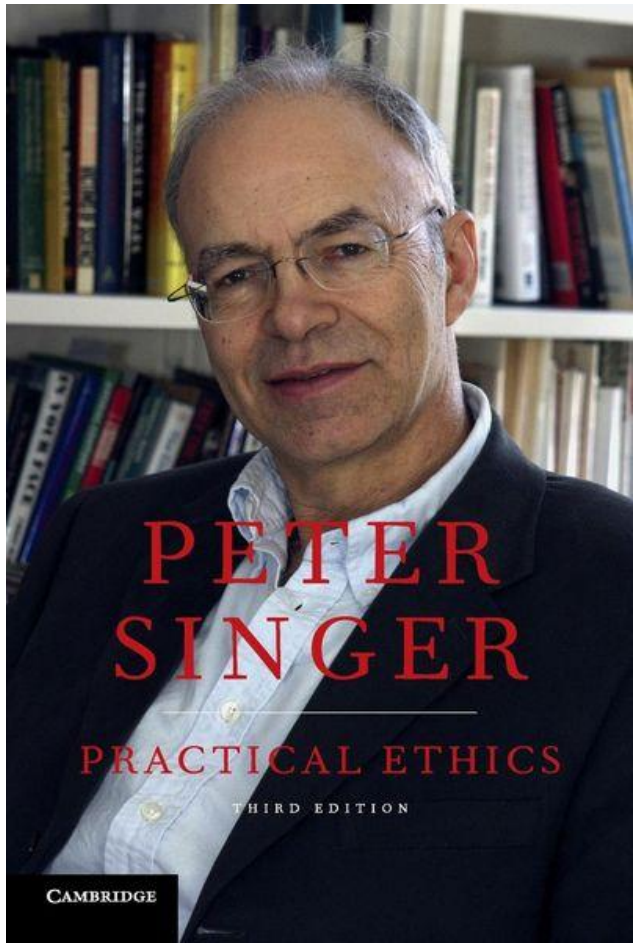
(Equal) Moral value

“The day may come when the rest of the animal creation will gain those rights which could never have been denied them except by the hand of tyranny. The French have already discovered that the darkness of the skin is no reason for a human being to be abandoned without recourse to the whim of an executioner. Perhaps one day it will be recognized that the number of legs, the hairiness of the skin [...] are equally insufficient reasons to abandon a sentient being to the same fate.” (Bentham 1780/1789: chapitre xvii, paragraphe 6)



Peter Singer

- Utilitarianism: what is morally right is what produces the most happiness and the less suffering for the most
- Pathocentrism: the ability to feel pain is the relevant moral property
- Principle of equal consideration: Equal interests should count alike, regardless of whose interests they are (group membership, nationality, race, gender, species, etc.)



Peter Singer

- Consequences:
  - Most forms of animal use cause, overall, more suffering than happiness
  - Animal research is allowed when it produces more benefits than harm (extremely rare)

Peter Singer

"To the hypothetical question about saving thousands of people through experiments on limited number of animals, opponents of speciesism can reply with a hypothetical question of their own: would experimenters be prepared to perform their experiments on orphaned humans with severe and irreversible brain damage if that were the only way to save thousands? (I say 'orphaned' in order to avoid the complication of the feelings of the human parents.)

If experimenters are not prepared to use orphaned humans with severe and irreversible brain damage, their readiness to use nonhuman animals seems to discriminate on the basis of species alone, because apes, monkeys, dogs, cats and even mice and rats are more intelligent, more aware of what is happening to them, more sensitive to pain and so on than many severely brain-damaged humans barely surviving in hospital wards and other institutions.

Experimenters, then, show bias in favour of their own species whenever they carry out experiments on nonhuman animals for purposes that they would not think justified them in using human beings at an equal or lower level of sentience, awareness, sensitivity and so on.

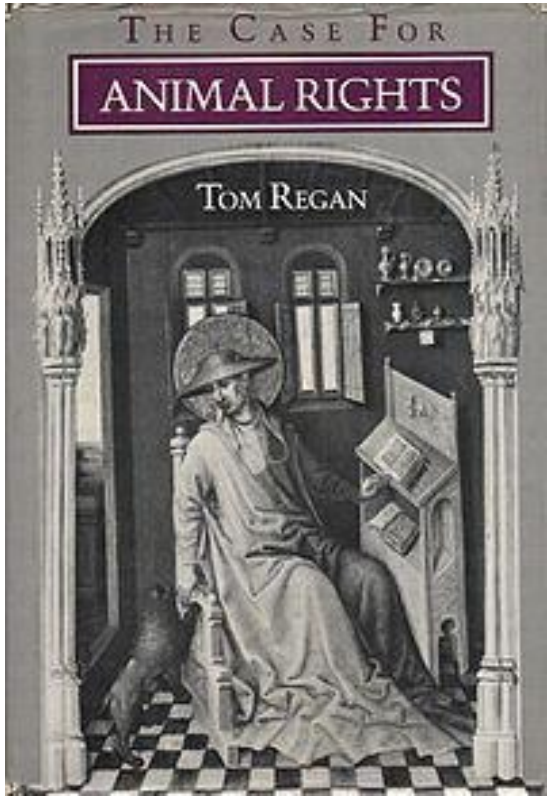
If this bias were eliminated, the number of experiments performed on animals would be greatly reduced."
(Singer, Practical Ethics, p. 57-58)

Specism

- Discrimination based on the specie
- “Racists violate the principle of equality by giving greater weight to the interests of members of their own race when there is a clash between their interests and the interests of those of another race. (...) Similarly those I would call 'speciesists' give greater weight to the interests of members of their own species when there is a clash between their interests and the interests of those of other species. Human speciesists do not accept that pain is as bad when it is felt by pigs or mice as when it is felt by humans”. (Singer, Practical Ethics)

Tom Regan

- Animals and humans have inherent value because they are subjects-of-a-life.
- Implications:
  - They have to be treated as ends in themselves (Kant)
  - They have rights (right to life, not to suffer, to freedom of movement, etc.)
  - It is not allowed to harm/ kill animals or to deprive them of their freedom
  - Abolition of all animal exploitation



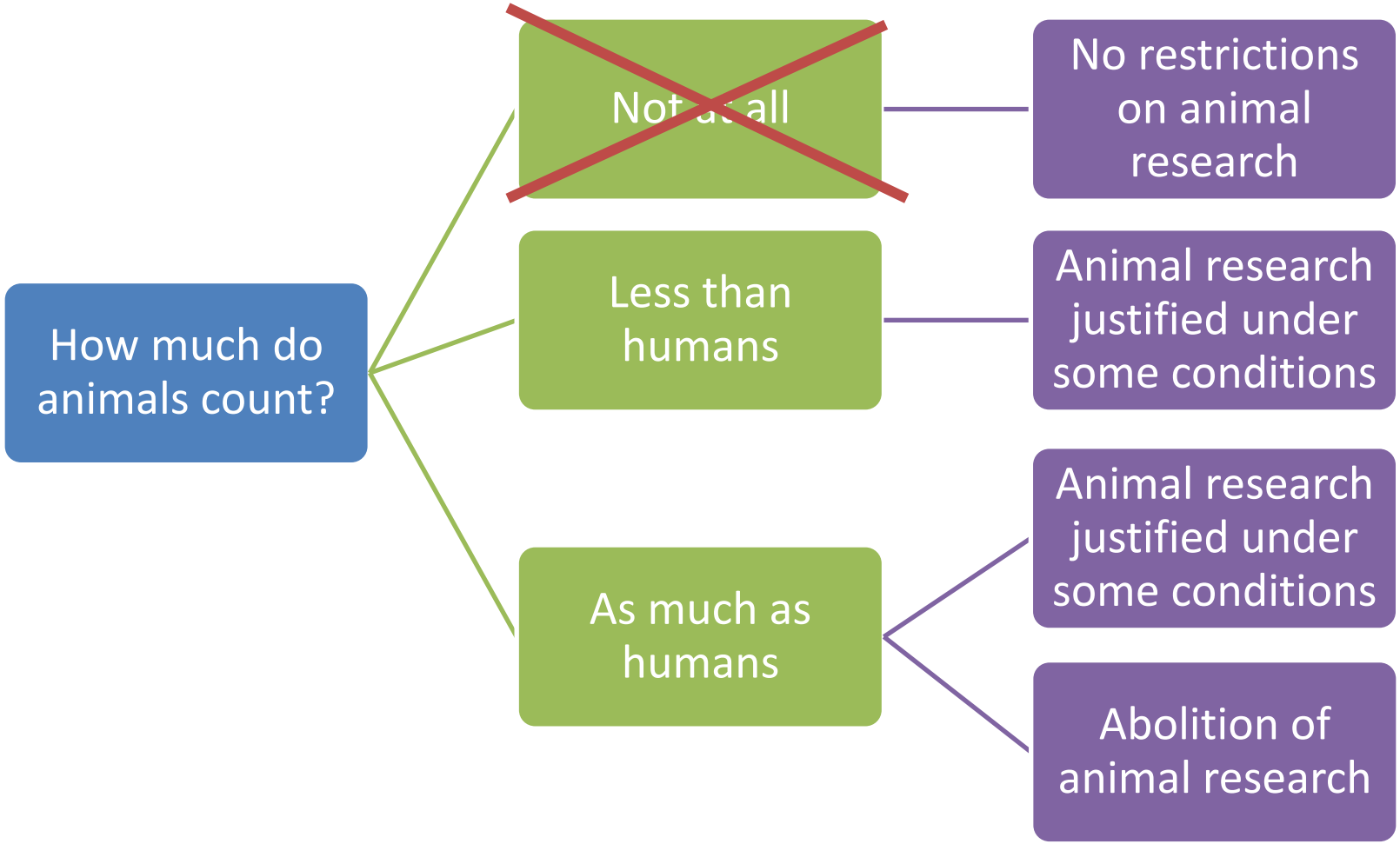
Tom Regan

- Animals and humans have inherent value because they are subjects-of-a-life
- [It] involves more than merely being alive and more than merely being conscious. ... individuals are subjects-of-a-life if they have beliefs and desires; perception, memory, and a sense of the future, including their own future; an emotional life together with feelings of pleasure and pain; preference- and welfare-interests; the ability to initiate action in pursuit of their desires and goals; a psychophysical identity over time; and an individual welfare in the sense that their experiential life fares well or ill for them, logically independently of their utility for others and logically independently of their being the object of anyone else's interests. Those who satisfy the subject-of-a-life criterion themselves have a distinctive kind of value – inherent value – and are not to be viewed or treated as mere receptacles.“ Regan 1983, p. 243.

Moral status of animals

- If we assume that animals have moral value, then, according to the moral theory:
  - We must take their interests into account.
  - They have rights that must be respected.
  - They must be the object of our virtues.

Implications for animal research



New approaches

- E.g.: Extension of human research principles to animals
- Principles of the Belmont Report:
  - Respect for autonomy,
  - Beneficence, justice,
  - Protection of the vulnerable
  - (Ferdowsian et al. (2020))

Degrees of severity as a way to measure constraint

Degree of severity 0 - No constraint

Interventions and handling of animals for experimental purposes which do not subject the animals to any pain, suffering or injury, do not cause them to suffer fear and do not impair their general state of health

e.g. observational studies, dehorning, feeding studies

Degrees of severity as a way to measure constraint

Degree of severity 1 - slight constraint:
Interventions and handling of animals for experimental purposes which cause slight pain or injury or slight impairment of their general state of health;
Ex: Injection of a medication; castration of male animals with narcosis; experiments under general anaesthesia, where the animal is euthanized while still under anaesthesia; vaccination, euthanasia and blood sampling for proof of efficacy of vaccines

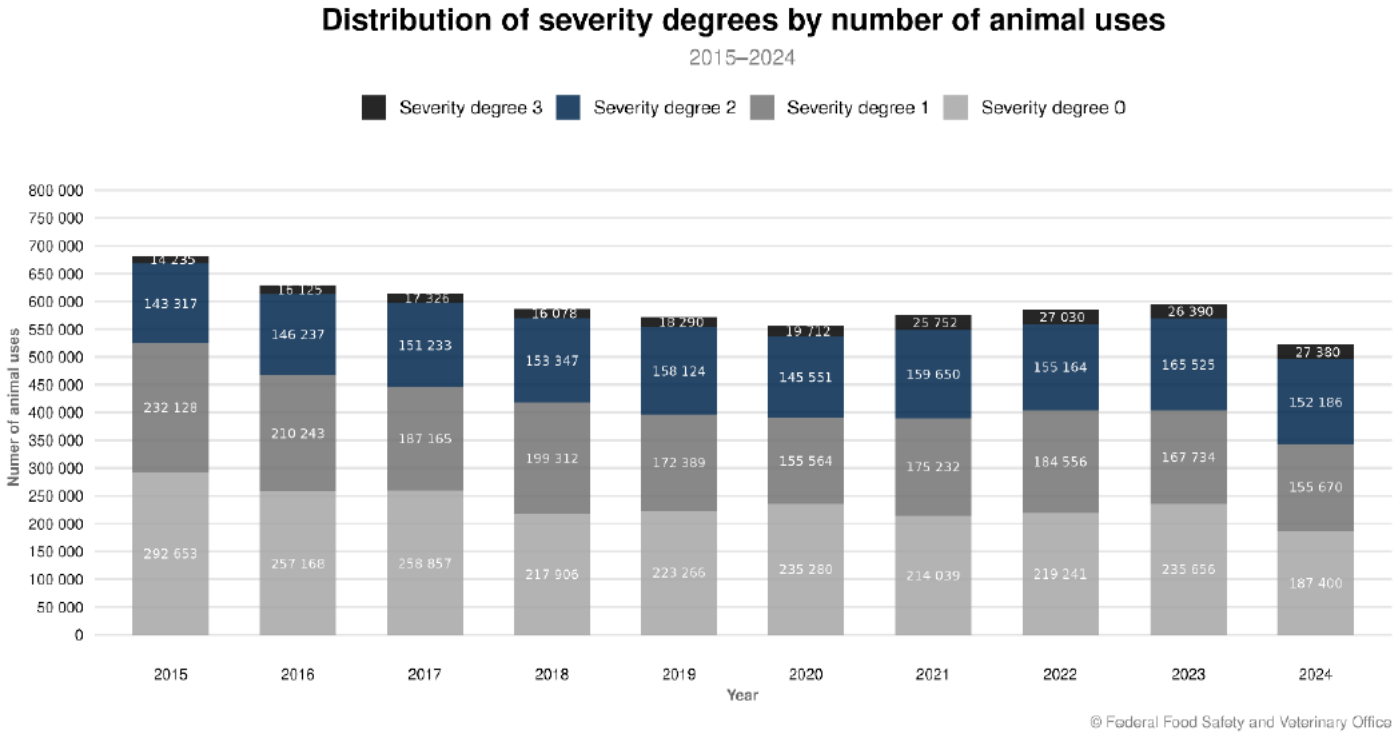
Degrees of severity as a way to measure constraint

Degree of severity 2 - moderate constraint:
Interventions and handling of animals for experimental purposes which cause short-term moderate or medium-to long-term slight pain, suffering or injury, short-term moderate fear or short to medium-term severe impairment of their general state of health.
Ex: Operatory treatment of a broken limb; Sterilization of female animals, Research for diabetes, cancer, arthritis, replacement of hip joints

Degrees of severity as a way to measure constraint

Degree of severity 3 -severe constraint

Interventions and handling of animals for experimental purposes which cause medium to long-term moderate pain or severe pain, long-term moderate to severe suffering, medium-to long-term moderate injury or severe injury, long-term severe fear or severe impairment of their general state of health.
Humane endpoints may be necessary for limiting the degree of severity.
Ex: Infectious diseases which lead to the death of animals, without anesthesia; transplanting aggressive tumors in animals; research for cancer, diseases of the nervous system, chronic pain, heart attacks, cerebral infarctions, autoimmune diseases.



The development of the severity degrees over the past 10 years shows that the total number of animals in severity degrees 2 and 3 has increased (see Fig. 4 and 5).

Change in the number of laboratory animal uses by severity degree

Year 2024 compared to the previous year

Severity degrees	2024	Difference between 2024 and 2023	%
Severity degree 0	187 400	−48 256	−20.47%
Severity degree 1	155 670	−12 064	−7.19%
Severity degree 2	152 186	−13 339	−8.06%
Severity degree 3	27 380	990	3.75%
Sum:	522 636	−72 669	−12.20%

Tab. 1: Change in the number of animals used by degree of severity in 2024 compared with the previous year. Only in severity degree 3 was there an increase.

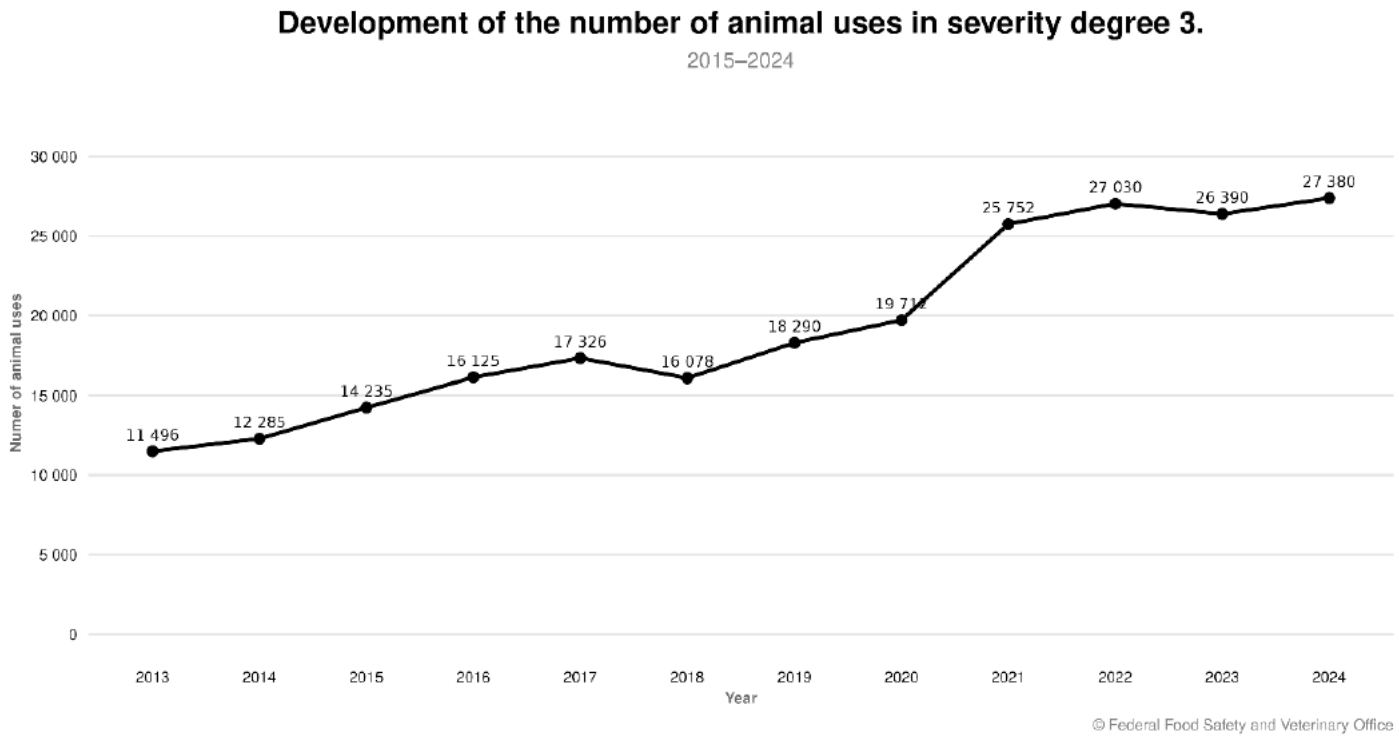
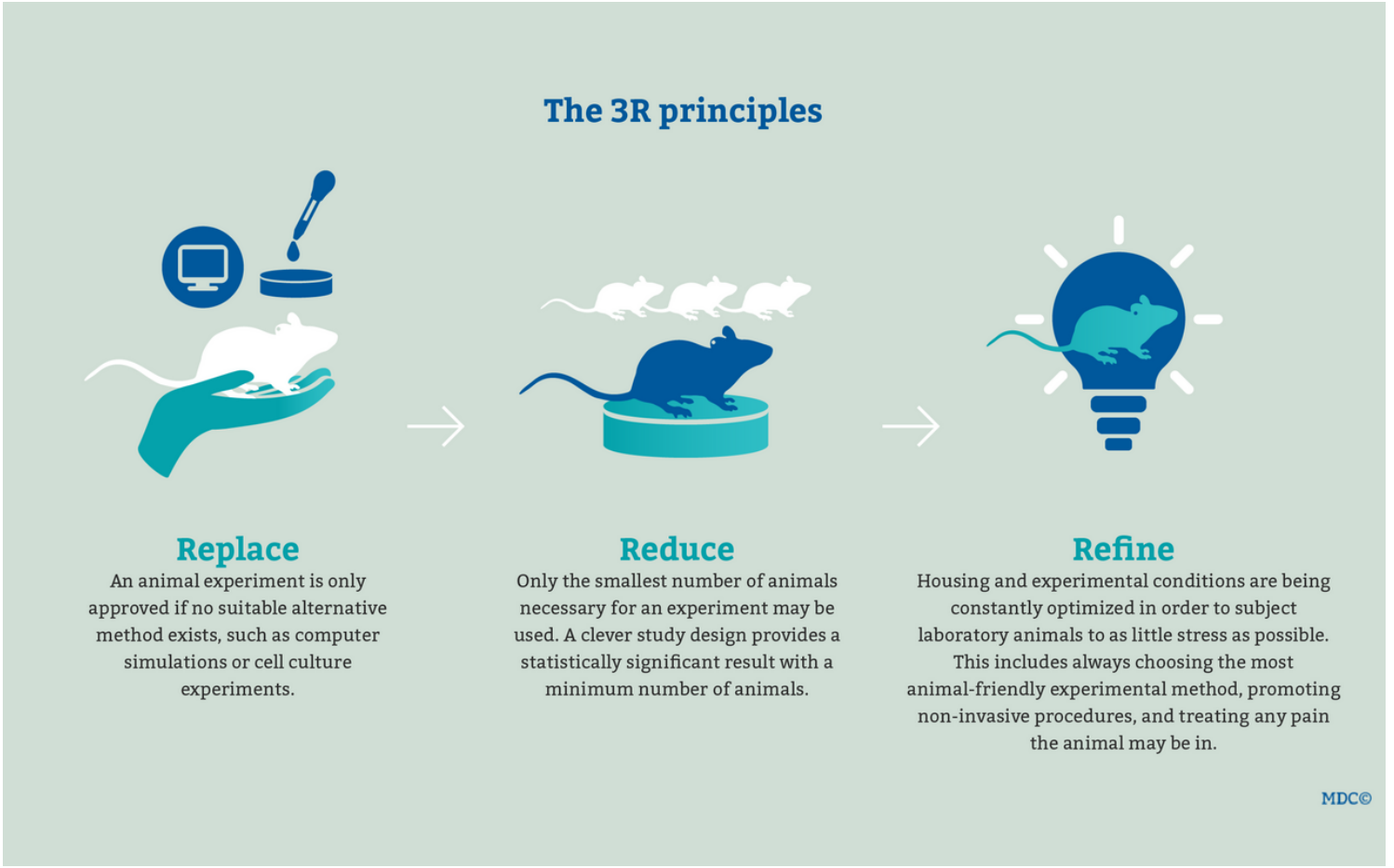


Fig. 7: Development of the number of animals in severity degree 3 over the past 10 years

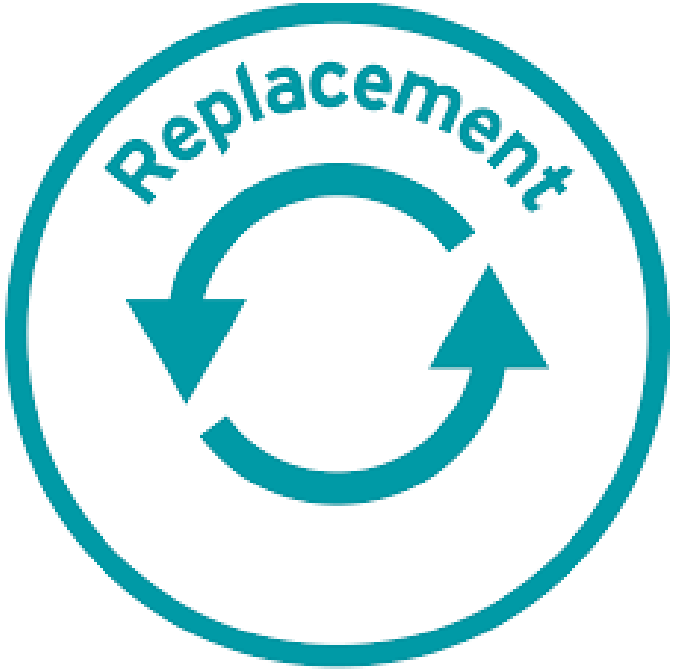
Although the number of animals used in severity degree 3 decreased in 2023 for the first time (640 fewer animals than in 2022), it rose again in 2024 by about 1 000 animals and is thus back at a comparable level to 2022 (see Fig. 7). In 2024, mice (+1 367) showed the most pronounced increase in severity degree 3. Mice continue to account for the largest share in severity degree 3 (around 25 000 animals / 91 %).



Principles developed 1959 by Russell and Burch

Replace

- Is there a way to investigate the research question without experimenting on animals?
- Ex. In vitro experiment

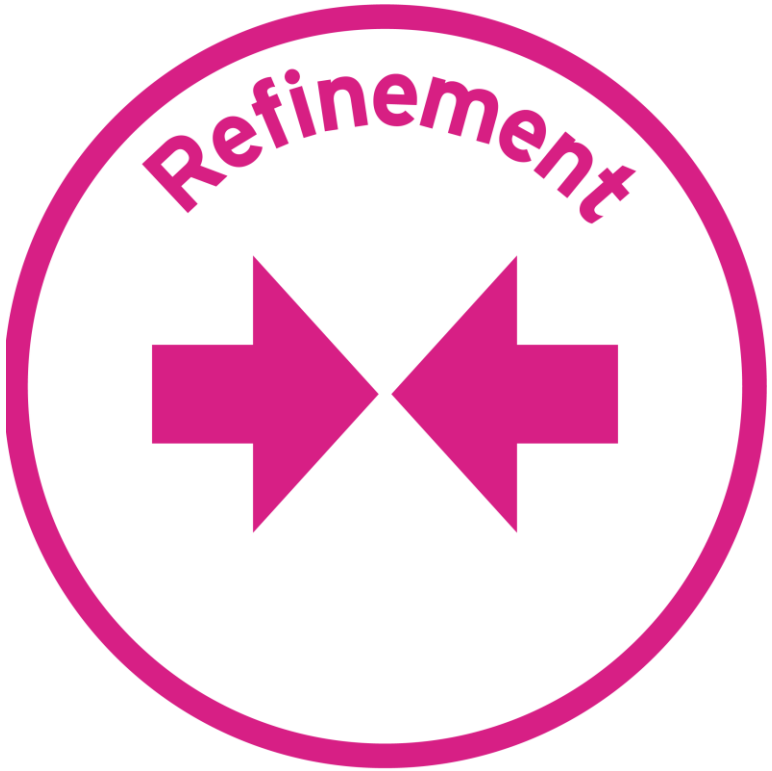


Reduce

- Reduce number of animals, while respecting scientific validity
- Other ways to reduce number of animals used, e.g. sharing research results (so others are aware of studies already conducted) or reuse of animals or tissues etc.

Refine

- Housing conditions:
  - Nesting and occupational opportunities
  - No unnecessary isolation etc.
- Experimental conditions
  - Duration of the experiment
  - Methods (analgesia or anesthesia)
  - Humane endpoint



Limits of the 3Rs

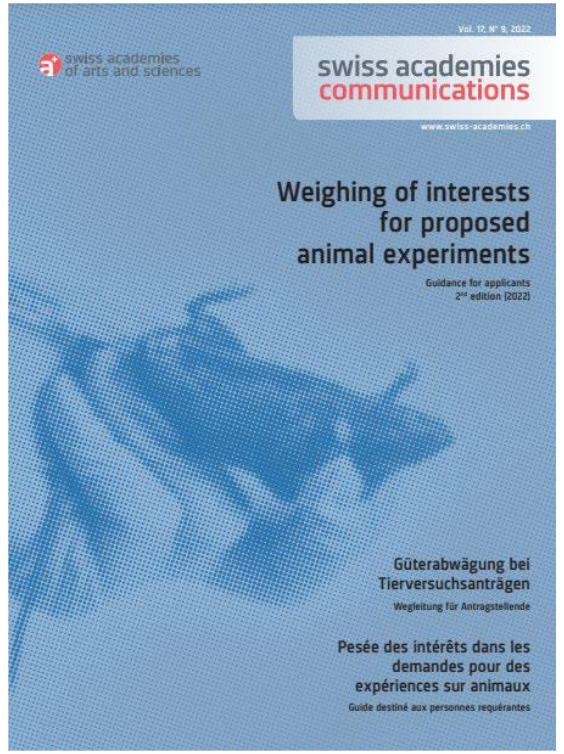
- Scientific validity:
  - Methods (what species, in vitro…)
  - Sample size
  - Use of anesthesia and other medication
- Reduce vs. Refine: use less animals with more harm, or more animals with less constraint?

Harm/benefit analysis

Severity and harm-benefit analysis

The harm-benefit analysis determines whether or not an animal experiment may be authorised and conducted. During the process, the gain in knowledge expected is compared with the anticipated level of distress suffered by the animal.

- To make a harm-benefit analysis, we have to be able to estimate the expected outcome (potential benefits)



https://www.blv.admin.ch/blv/en/home/tiere/tierversuche/schweregrad-gueterabwaegung.html

Rearch with animals vs. human participants

- Collaborative partnership
- Social value
- Scientific validity
- Fair selection of subjects
- Favorable risk-benefit ratio
- Independent review
- Informed consent
- Respect for recruited participants and study community

“Benchmarks” for animals?

Emanuel, Wendler, Killen, Grady, 2004

PREPARE Guidelines: Planning Research

- PREPARE –Planning Research and Experimental Procedures on Animals: Recommendations for Excellence
- Checklist of 15 points for planning a study, including
- Formulation of the study, e.g. literature research, legal issues, ethical issues, study design
- Dialogue between scientists and the animal facility, e.g. objectives and timescale, facility evaluation, training, health risk, waste disposal etc.
- Quality control of the components in the study, e.g. animals chosen, test procedures, husbandry, humane killing or rehoming, etc.

ARRIVE Guidelines: Reporting Research

- Checklist of 20 items for reporting animal research
- From title and abstract to
- Methods (Design, procedure, types of animals, housing, sample size, statistical method, randomisation etc.)
- Results (e.g. numbers analysed)
- Discussion etc.
- «In 2010, the Animal Research: Reporting of In Vivo Experiments (ARRIVE) guidelines were introduced to help improve reporting standards. They were published in PLOS Biology and endorsed by funding agencies and publishers and their journals, including PLOS, Nature research journals, and other top-tier journals. Yet our analysis of papers published in PLOS and Nature journals indicates that there has been very little improvement in reporting standards since then. This suggests that authors, referees, and editors generally are ignoring guidelines, and the editorial endorsement is yet to be effectively implemented.»
- Baker et al. 2014

Conclusion

- The moral status of animals is a debated question
- How we answer that question has important implications for research with animals
- The current laws and guidelines assume animals have less moral import than humans
- The rationale behind that is not clear